BTEC Assignment Brief

Qualification	Pearson BTEC Level 3 National Diploma in Engineering Pearson BTEC Level 3 National Diploma in Electrical/Electronic Engineering Pearson BTEC Level 3 National Diploma in Digital Engineering Pearson BTEC Level 3 National Extended Diploma in Engineering Pearson BTEC Level 3 National Extended Diploma in Electrical/Electronic Engineering Pearson BTEC Level 3 National Extended Diploma in Computer Engineering
Unit number and title	**Unit 38: Website Production to Control Devices**
Learning aim(s)	**C:** Design a website application to remotely control a physical device across the internet **D:** Develop a website application to remotely control a physical device across the internet
Assignment title	Design and implementation of a website application to control a device
Assessor	
Issue date	
Hand in deadline	
Vocational Scenario or Context	You have investigated the technologies and languages that are used in website controlled devices that are on the market. Your supervisor is pleased with your understanding of these and would now like you to design a website application that meets the client brief to provide an effective website application to control a Smart Technology-enabled fridge-freezer to challenge the larger companies in the national market place. Your supervisor would also like you to develop the web portal aspect of the project and ensure that it meets the client brief.
Task	Design a website to connect to provide an external user interface for the prototype fridge. The website will need to provide internal images and data from the fridge placed in the home. The website will also allow the user to order food items providing suggestions on common and currently out of stock items. The website will need to communicate with a database, and provide a secure external API for the developers in the fridge hardware team to use. Your designs should consist of diagrams and report and must include: • A problem definition statement • Research of similar interactive websites • Initial design / prototypes for an interactive website consisting of: o Diagrammatic illustrations – wireframes, site maps o Realistic representations o Alternative design ideas with reasons for not

	choosing them, including mobile/table considerations • Original scripting designs – pseudo code, flow charts • A test plan with test data for functional testing, whilst reviewing your designs • Technical and design constraints You will need to include common tools, techniques and languages that you will use in your development stage giving reasons for their choice: • W3C standards, HTML 5 • Form, Navigation and Interactive components • CSS • Embedded client side scripts Give reasons how your designs meet the client requirements, and why you have chosen them as the solution. **You will then need to** Develop your website as outlined in your designs. Your website should include the use of: • Styles • Original client-side scripts • Compatibility for mobile and table devices • Effective use of tools and techniques, including the appropriate use of scripting and styles (professional appearance) • Functional testing – links and scripts You will need to provide evidence of the use of all the programming constructs in your server side scripts and website application. You also need to provide evidence to satisfy the security requirements of the client brief. You should provide evidence of where you have implemented: • Managed user accounts – login credentials and sessions • TLS • Data Sanitisation, including methods for communicating with the database (e.g. stored procedures, views, connection strings) • Encryption Upon completion of the development of the website application and external API, carry out functionality testing and optimise the system where fails occur and over complicated procedures or methods exist.
Checklist of evidence required	Design documentation showing the planning, preparation and design for a website application. Presentation of a functional website application with supporting development and test documentation.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
38/CD.D2	Optimise a functional fully annotated, efficient, stable and secure website application with an effective user interface and including data storage that operates as intended, using a comprehensive set of justified design and test documentation.
38/C.M3	Design a secure website to control a physical device, while justifying the design decisions to meet the client brief and including a test plan, any technical constraints and alternative solutions.
38/D.M4	Refine the secure functional website application to meet the client brief, including an effective use interface and data storage.
38/C.P3	Design a secure website application to control a physical device, including a test plan and any technical constraints.
38/C.P4	Review the design of the secure website application to ensure that any functionality requirements from the client brief are met.
38/D.P5	Build the functional and secure website application, using the design documentation, to control a physical device.
38/D.P6	Test, using the test plans, the secure website for functionality and data storage, repairing any faults to ensure that it meets the client brief.

Sources of information to support you with this Assignment	**Books** Pearson textbook specific to new BTEC Nationals in Engineering Willard, W.; Web Design: A Beginner's Guide Second Edition; McGraw Hill Professional, 2010; ISBN 9780071701358 **Websites** w3.org/standards/webdesign w3schools.com msdn.microsoft.com/en-us Above are some examples of websites. Further useful resources may be found at qualifications.pearson.com/en/support/published-resources.html#step1